DEDICATION ADDRESS FOR HAWAII FIELD RESEARCH CENTER*

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When Bob Barbee asked me to offer some comments this morning, I thought about my past role as a park scientist and my present role as a manager of professional programs. I felt I should not miss this opportunity to comment on some issues that concern me very much dealing with the National Park Service (NPS) science programs and scientists and their relationship to resource management programs and managers.

During our first century of managing national parks, we took it upon ourselves to "play God" because we decided which natural processes were "good" and which were "bad." But how did we assign such moral qualities to fire in the forest or to predators among species of wildlife?

In 1963 we were reminded by the Leopold Report that "playing God" was not what our mission was all about. And as scientists and managers, I find it useful from time to time to look at some of its major points again. You remember the catch phrases: "National Parks should be a vignette of primitive America," and "A reasonable illusion of primitive America can be recreated . . . using the utmost in skill, judgment, . . . and ecologic sensitivity."

But there were other important ideas, too:

1. It pointed out the folly of tinkering with natural processes without understanding these processes.

2. It said that the NPS must recognize the enormous complexity of ecologic communities and the diversity of management procedures required to perpetuate them.

3. It said that <u>management without knowledge</u> would be a dangerous policy.

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* Portions of this paper were adapted from the Keynote Address at the NPS Pacific Northwest Region's Science/Resource Management Workshop, April 18, 1978.

When I began my present assignment in the Western Region, I wrote a memo to my boss, Howard Chapman, in which I raised several basic questions about science and scientists and attitudes of managers toward them. I said that perhaps the first question we must ask ourselves and answer honestly is: "Do we really want professionals and scientists in the NPS?" If we do, we must pay for this service, both through adequate funding and through strong commitment to the highest standards of professional activity. Such activity must include: (1) high-quality, in-house research to provide essential facts to quide management programs; and (2) publication of these results in professional journals.

Our past performance, while it has been improving recently, still has a long way to go, as both the Robbins and Leopold Reports in 1963 pointed out. In summary, these reports said four things:

1. We need a permanent, independent, identifiable research unit within the National Park Service.

2. Most of the research by the Park Service should be mission-oriented.

3. The NPS should itself plan and administer its own mission-oriented research program.

4. The results of research undertaken by the Park Service should be publishable and should be published.

Such concepts form the basis for my personal philosophy of what our objectives and goals ought to be for a natural science research organization in the Park Service. But I think there are differences in approaches between some managers and researchers on these points.

The Manager Needs the Sound, Scientific Support of the Scientist

While many managers may sense they need information upon which to base their management of forest resources or wildlife resources or fisheries resources, they do not always think they need a real scientist.

> "Just get me the data," some say. "Give it to me in a report with management recommendations I can understand. But don't bother to write it up for those ivory-tower scientific journals. That's just the scientist doing his thing with his scientific peers. That's for his own personal benefit. It doesn't help me."

I want to say that I strongly disagree with this philosophy. And I want to tell you why. There is no way that a manager can be assured his scientist's information is solid unless he operates like a scientist and is recognized by his peers and the scientific community as a scientist. And for this to happen, there are few viable shortcuts to the process of careful design of a research project, careful review of that design by the most knowledgeable professional peers, careful gathering of data (often by research technicians, not the scientist himself), and professional analysis of the results and drawing of conclusions which are then subjected to a number of review processes, with publication as the final product.

This is a point I have trouble with in discussions with many managers and some researchers. Yet, I feel strongly that if a field research scientist does not publish, the research mission of the Park Service will certainly perish in the sense that it will come to have zero influence in or out of the Service.

So, what I am saying is the National Park Service must increasingly learn to support your local scientist and your local Cooperative National Park Resources Studies Unit (CPSU) when they seek to establish a reputation for solid scientific achievement. We must learn to support the process of presenting papers at scientific meetings and preparing the results for publication in the best possible scientific journals.

Attitude of the NPS Scientist

On the other hand, let me warn the National Park Service field-area scientist and the CPSU scientist that a part of the reason we lack management support for science stems from attitudes of some Service scientists and research biologists. There are those scientists--few, I hope--who are inclined to use fancy equipment and procedures to do a job that less sophisticated procedures could do equally well and with better management support and understanding. If you need computers and sophisticated equipment, use them. But do not play science games. And do not try snow jobs on managers.

The National Park Service scientist, who does not fully understand that the primary function of Service scientists is to produce mission-oriented results for those problems identified by management as being top priority problems, has done great damage to the image of science in the NPS. Such an individual may feel he is free to study whatever strikes his fancy, because anything he learns will benefit society and hence, the NPS. While most basic research has some interpretive value, there is no quicker way to lose support of the hard-pressed manager with a tight budget and an early deadline than to operate this way.

But we can make it over this hump if we have two things: (1) greater understanding on the part of the manager that good solid science is costly and takes some optimum minimum time, and that following through to publication is a worthwhile investment both for the scientist and the manager; (2) greater commitment on the part of the NPS scientist to working with the manager at the outset to select his highest priority projects to study, and then a continuing effort to gain a mutual understanding of what both hope to achieve by the research. This should sometimes include how data gathering--whatever is decided upon--will help the manager make a decision. In other words, we need desperately to better understand one another. We need better bridging of the communications gap that exists between manager and scientist.

Bridging the Gap Between Scientist and Manager: The Role of the Resource Management Specialist

I feel that bridging the communications gap between the scientist and the Superintendent or manager is a key role that resources management specialists can and must play. This role is vitally important, and they need background experience and professional training as nearly equivalent to that of the scientist as possible. As I would see it, researchers and resources management specialists relate to each other in the following way:

1. The scientist develops the basic strategy--a sound rationale for ecological action programs of prescribed burning or goat and pig reduction or reintroduction of extirpated species.

2. Then the resources management specialist--the second half of an essential team--deals with the tactical operations of actually doing controlled burning in a regular way or guiding rangers in reducing exotic animal herds.

An extremely important need in the Service now is to develop a solid, professional resources management program. We need a career ladder for resources management specialists, an effective training program for such specialists, and a separate grade evaluation system to encourage them to become highly skilled specialists and not have to transfer to line management or to research in order to advance professionally. We should be able to recruit prospective resource management specialists directly from universities or from other assignments where their background experience qualifies them well.

I would see scientists and resources management specialists forming essential teams in larger parks, splitting the strategy and tactics of resources management, while in smaller parks, the scientist part of the team would be provided by scientists stationed at CPSU's.

We will see how far these ideas get in the next few years in the NPS. But some effective system for bridging the research-management gap must be found because managers need mission-oriented research. But not just the short-term brush fire efforts. Once you have identified a major isue, you need to go into in-depth studies of the various aspects of the ecosystem that are related to that particular problem. In no way can we be superficial in our approach.

Where the Researcher Fails the Manager... And the Manager Fails the Researcher

All too often, researchers fail in their job to assist managers, and managers fail in their job to support researchers. The researcher most often fails the manager when he:

--carries out overly-sophisticated studies that are unrelated to management;

--makes little effort to communicate the results of his research to the manager (including recommendations for action);

--does not set up mutually agreed upon objectives at the beginning of the project and then follow through with reports and publications that are of value to the manager.

The researcher owes a manager at least two things: a solid study that leads to publication; and recommendations on how his research relates to management.

The manager may fail the researcher when he:

--undercuts the researcher's efforts to work steadily on primary projects, often by involving him in "brush fire" projects;

--does not communicate management problems he needs research answers for in a timely way, or does not seek a researcher's input on whether a given resources problem should have priority consideration for limited research funding;

--puts research at the bottom of the priority list for funding (maybe cutting it first in order to fill chuckholes in his road);

--discourages a researcher's papers at professional meetings or discourages him from finishing publications.

Hawaii Volcanoes: A Success Story

But with all its problems and controversies, resource management and research at Hawaii Volcanoes National Park has been a real success story, and the research center we are dedicating here today is a concrete example of the tremendous progress being made. Looking back briefly at where we have been in research in the National Park Service during the past 50 years, gives us some perspective. Lack of knowledge about natural resources and natural processes in parks has been a serious threat to the ecological health of many parks. Such was the case here in Hawai'i in the early 1960's with the two large park areas of Hawaii Volcanoes and Haleakala.

It is well documented that more species of native Hawaiian plants and animals have become extinct in these islands--and more are threatened with extinction--than in any other biological province on earth. We in the National Park Service are especially concerned with the problems in Hawai'i since the Service is the largest Federal land agency in the State, and because the Service is charged with a Congressional mandate to conserve the scenery, natural objects, and wildlife on all national park lands.

Research programs in the Service really began in the late 1920's when an advisory committee on problems in the national parks recommended a research program to fill some of the gaps in scientific information needed to administer and interpret the nation's national parks. In response, a Branch of Research and Education was created in 1930, headed by Dr. Harold Bryant, a student of Joseph Grinnell. Two years later, the Wildlife Division of the NPS was established as the first organization created solely for the purpose of ecological research and management of biological resources. It was led by George Wright, another Grinnell student.

At about this time, the Civilian Conservation Corps (CCC) presented the Park Service with a unique opportunity for expanding its conservation role on the national scene. CCC Camps were established all over the country; many were placed in national and State parks. The National Park Service administered portions of the CCC Program, and was able to acquire a large sum of Federal funds for research and management activities in national parks. (The site of the present Hawaii Field Research Center was at one time a CCC Camp.)

Unfortunately, George Wright was killed in 1936 and the CCC Program was abolished in the early 1940's. This led to a definite drop in NPS research efforts. It was not until nearly 25 years later, in the early 1960's, that the biological problems of the parks were again recognized as needing extensive NPS research commitment. In 1958, the Service obtained its first official budget solely for research--a meager sum of $28,000 for the entire NPS.

While the $28,000 would not even build a single comfort station for one national park, the money had some real psychological and fiscal pump-priming effects. Several Regional Offices and a few parks added their own funds to materially augment this initial sum. As such, this stimulated research institutions to produce several dozen reports by 1962 on critical ecological situations in a number of parks.

In the early 1960's, the Secretary of the Interior requested two surveys. The first was the "Leopold Report" I mentioned earlier. The second survey was one by the National Academy of Sciences on Research needs in national parks. It outlined the steps necessary to set up an effective research organization to handle park management problems.

Part of the Academy of Sciences Report stated that research centers should be established in national parks when justified by the nature of the park, and that such research centers should not only serve the staff of a national park but should be used jointly by personnel from universities, other organizations, and other Government agencies.

The late 1960's signaled the end of the 25-year period of frustration for biological research and management in the national parks, and the beginning of a new period of opportunity and hope for a better future.

Today, 10 years later, the annual research budget for Hawaii Volcanoes alone totals about $250,000. Considering our sister agencies, in the latter 1960's the Fish and Wildlife Service assigned a biologist to Hawai'i to research the probable causes for the decline of Hawaiian birdlife, and in 1969 the two agencies jointly established the Mauna Loa Field Station in Hawaii Volcanoes, manned by one research biologist from each agency.

Then in 1970, ecosystem research in Hawai'i received a tremendous "shot-in-the-arm" with a several-million-dollar grant from the International Biological Program (IBP). Many of the 5-year studies undertaken wholly or in part in the Hawaiian national parks required adding space for offices and laboratories.

These present facilities of the Hawaii Field Research Center were used at that time by the Kilauea Job Corp Camp, but when the camp was vacated in 1973, plans were immediately formulated to use the buildings (1) for needs of the IBP Program; (2) for other scientists including personnel from the Cooperative National Park Resources Studies Unit at the University of Hawaii; and (3) to expand the operations of the Mauna Loa Field Station into a several-person facility for research on endangered Hawaiian ecosystems. Since 1973, there has been increasing momentum in the development of the Center as a major facility for research in Hawaii and in the national parks.

In 1977, the U. S. Forest Service joined the ranks of the National Park Service and the U. S. Fish and Wildlife Service as the third Federal agency in Hawai'i to be concerned with research and management of endangered Hawaiian biotas. Total funding for the three agencies approaches about $750,000 a year.

The combined research efforts of the three agencies will make this one of the really significant interagency efforts in the country. The combined total of more than 20 permanent and seasonal employees from the three agencies should enable us to carry out a far more effective program of research on the decline and present status of endangered flora and fauna than would be possible by any single agency effort. We hope there will be the synergistic interactions which will help us all, and that some critical mass has been achieved that will ensure that this research facility, with these biennial conferences, with monthly seminars attended by leading scientists in Hawai'i, and with on-going research carried out by staffs of three Federal agencies will become the leading research facility of its kind in the State.

It is appropriate, therefore, at this stage of development that we officially recognize the potential for the Hawaii Field Research Center to become Hawai'i's leading facility for research and management of natural resources, and as one of the best institutions of its kind in interagency cooperation anywhere in the nation.

In doing so, I want to express my personal commendation, and --I think I can safely say--that of the Western Region and the Washington Office of the National Park Service, for the heroic research and resource management efforts which have been made at Hawaii Volcanoes and in Hawaiian parks generally.

This is a tribute to the dedicated and long-standing efforts of:

--Bob Barrel, Hawaii State Director of the National Park Service;

--Bryan Harry, Past Superintendent, and Bob Barbee, Present Superintendent of Hawaii Volcanoes;

--The researchers, past and present,...who have contributed immensely to knowledge needed for active management programs--Ken Baker, Garrett Smathers, Dieter Mueller-Dombois, Cliff Smith, their graduate students, and many others from the University of Hawaii;

--and perhaps one of those who has contributed most has been Don Reeser, Resource Management Ecologist at Hawaii Volcanoes, who with his dedicated staff has contributed immensely to the positive values of the resources management program at Hawaii Volcanoes which is recognized as one of the finest active resource management programs in the Western Region and the National Park Service as a whole.

By no means, however, do I imply that our work is done! There is much left to do, including several items about which there is much controversy, and where we will need productive interchange between scientists and resource managers to resolve the issues. But I feel we all have two common objectives, as stated in the Master Plan which was recently approved. Namely:

(1) Protect the park's remnant Hawaiian ecosystems--including endangered species--from further depredation and competition by those exotic animals and plants introduced by modern man.

(2) Reestablish the park's endemic species into their former ranges, concentrating efforts on those species which are in danger of extinction, and those that are key components of major native ecosystems.

It is my honor on behalf of the National Park Service to declare the Hawaii Field Research Center as an official function of the National Park Service research and management effort, and to acknowledge that the Center is a facility for use and cooperation by other Federal agencies and educational institutions concerned with the conservation of Hawai'i's natural flora and fauna.